

What is claimed is:

1. A single crystal semiconductor body having a trench with sidewall portions disposed in different crystallographic planes of the body, such sidewall portions having thereon substantially uniformly thick, thermally grown, silicon
5 dioxide material.

2. A method comprising forming substantially uniformly thick, thermally grown, silicon dioxide material on sidewall portions of a trench in a surface of a single crystal semiconductor body, such sidewall portions being
10 disposed in different crystallographic planes of the body.

3. A method for forming a thermally grown oxide on a surface having surface portions thereof disposed in different crystallographic planes, comprising:
15 providing a relatively thin material on selected ones of the surface portions, such selected ones of the surface portions having crystallographic planes which, when subjected to a thermal oxidation process, grow such oxide at a relatively higher rate than the rate such oxidation process grows such oxide on un-selected surface portions disposed in other crystallographic planes;
20 subjecting the surface portions to the oxidation process to grow the oxide with a thickness greater than the thickness of the material; such oxide being grown over the selected surface portions and the un-selected surface portions with a substantially uniform thickness.

25 4. A method, comprising:
providing a trench in a surface of a single crystal silicon body, such trench having sidewalls disposed in different crystallographic planes, one of such planes being the <100> crystallographic plane and another one of such planes being the <110> plane;

forming a substantially uniform layer of silicon nitride on the sidewalls of the trench;

5 subjecting the trench with substantially uniform layer of silicon nitride on the sidewalls thereof to a silicon oxidation environment with sidewalls in the <110> plane being oxidized at a higher rate than sidewalls in the <100> plane producing silicon dioxide on the silicon nitride layer having thickness over the <110> plane greater than over the <100> plane;

10 subjecting the silicon dioxide to an etch which selectively removes silicon dioxide while leaving substantially un-etched silicon nitride, such subjecting being for a time selected to remove portions of the silicon dioxide over the <100> plane to thereby expose underlying portions of the silicon nitride material while leaving portions of the silicon dioxide over the <110> plane on underlying portions of the silicon nitride material;

15 selectively removing exposed portions of the silicon nitride material to expose underlying portions of the sidewalls of the trench disposed in the <100> plane while leaving substantially un-etched portions of the silicon nitride material disposed on sidewalls of the trench disposed in the <110> plane;

20 subjecting the exposed underlying portions of the sidewalls of the trench disposed in the <100> plane and the un-etched portions of the silicon nitride material disposed on sidewalls of the trench disposed in the <110> plane to an silicon oxidation environment with the exposed sidewalls in the <100> plane being oxidized at substantially the same rate as the sidewalls in the <110> plane having the un-etched silicon nitride material thereon to produce a substantially uniform silicon dioxide layer on the sidewalls of the trench.

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